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Robert A Dunn  
Dinnin & Dunn PC  
2701 Cambridge Ct.  
Suite 500  
Auburn Hills, MI 48326

EXAMINER

LUK, EMMANUEL S

ART UNIT

PAPER NUMBER

1722

DATE MAILED: 07/09/2003

17

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Applicati n No.

09/553,807

Applicant(s)

THOMAS, RONALD

Examiner

Emmanuel S. Luk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 June 2003.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1 and 3-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 3-11 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Response to Amendment*

1. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive and, therefore, the finality of that action is withdrawn.

### ***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 1, 2 and 5 are rejected under 35 U.S.C. 102(b) as being obvious by Carroll.

Carroll teaches the claimed apparatus having a hollow passage (54) with first end to connect pressurized fluid supply (48) to the interior of the chamber (56), a pin (55) having an end portion (53) with a first pressure surface matingly received by the first end of the passage, substantially blocking the passage at the retracted position. The second part of the end is the second pressure surface that comes into contact with the fluid from the fluid supply, the fluid pressure acting upon the pressure surface at varying pressure can change the position of the pin thereby allowing fluid into the cavity in the extended position or to be blocked by the retracted position. This is taught by Carroll with the first and second pressure surface defined on the distal end of the pin, the first pressure surface in the retracted position is in mating position with the poppet valve (50) and the second pressure surface in the retracted portion is in contact with the fluid (Fig. 3). The flow of the fluid will during the extended position come into contact with both the first and second pressure surface. The springs (33) act as actuators to bring the pins from an extended position to a closed position. Carroll also teaches

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poppet valves (30) that enter into the cavity, the valve having enlarged distal ends extending beyond the distal end of the passage.

***Claim Rejections - 35 USC § 103***

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

5. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carroll as applied to claims 1, 2 and 5 above, and further in view of Daniels.

Carroll teaches the claimed apparatus as shown in the above rejection.

Carroll fails to teach a hydraulic actuator for guiding the pin.

Daniels teaches a hollow passage (82) having distal end for connecting a pressurized fluid supply (Fig. 8) to the interior of the chamber (26), a pin (34) extending through the passage and reciprocal between an extended position (Fig. 5) and a retracted position (Fig. 4), said first end blocking the passage when the pin is in its

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retracted position (Fig. 4) and the surface that contacts the walls of the passageway matingly receive and acts as a first pressure surface, an actuator (36) operably coupled to the second end of the pin and reciprocating the pin in cooperation with a fluid pressure at the pressure surface. The cylinder can be either hydraulic, pneumatic, or any other type of cylinder (Col. 3, lines 1-2) and the second end of the pin having a second pressure surface as it extends into contact with the cylinder. The distal end of Daniels being enlarged at the tip for covering the passageway (78) such that it cuts off the flow when in the retracted position (Fig. 4).

It would have been obvious to one of ordinary skill in the art to modify Carroll with an actuator as taught by Daniels because it allows for an improved seal of the passageway with the controlled movement of the pins.

6. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carroll as applied to claims 1, 2 and 5 above, and further in view of Denne.

Carroll fails to teach an electromagnetic actuator.

An electromagnetic actuator is known in the art as shown by Denne who teaches an electromagnetic apparatus (Col. 1, lines 31-39) which drives a piston (90) so that it produces a linear motion (Col. 1, lines 5-6) on the piston.

Thus, an electromagnetic actuator would have been obvious to one of ordinary skill in the art to modify Carroll with the substitution of an electromagnetic actuator as taught by Denne to drive the pin because it is an actuator that is capable of providing control and precision missing from pneumatic actuators (Col. 2, lines 1-7).

7. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carroll as applied to claims 1, 2 and 5 above, and further in view of Terao.

Carroll fails to teach a ball screw drive for reciprocating the pin.

Terao discloses that in related arts of actuator systems, the electric motor is directly coupled to the ball screw. The piston rod is connected to the ball screw and the drive shaft of the electro motor (Col. 2, lines 2-6). Furthermore, the ball screw shaft (22) engages the piston (20) while an electric motor (26) drives the ball screw shaft (Col. 2, lines 34-36).

The use of a ball screw drive for reciprocating a piston or pin is well known in the actuator arts and it would have been obvious to one of ordinary skill in the art to modify Carroll with the substitution of a ball screw drive as taught by Terao as drives for reciprocating the pin because it is a well known alternative drive means for reciprocating movement.

8. Claims 7-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Carroll in view of Denne.

Carroll teaches the claimed apparatus having a hollow passage (54) with first end to connect pressurized fluid supply (48) to the interior of the chamber (56), a pin (55) having an end portion (53) with a first pressure surface matingly received by the first end of the passage, substantially blocking the passage at the retracted position. The second part of the end is the second pressure surface that comes into contact with

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the fluid from the fluid supply, the fluid pressure acting upon the pressure surface at varying pressure can change the position of the pin thereby allowing fluid into the cavity in the extended position or to be blocked by the retracted position. This is taught by Carroll with the first and second pressure surface defined on the distal end of the pin, the first pressure surface in the retracted position is in mating position with the poppet valve (50) and the second pressure surface in the retracted portion is in contact with the fluid (Fig. 3). The flow of the fluid will during the extended position come into contact with both the first and second pressure surface. The springs (33) act as actuators to bring the pins from an extended position to a closed position. Carroll also teaches poppet valves (30) that enter into the cavity, the valve having enlarged distal ends extending beyond the distal end of the passage.

Carroll fails to teach an electronic actuator and controller.

An electromagnetic actuator is known in the art as shown by Denne who teaches an electromagnetic apparatus (Col. 1, lines 31-39) that drives a piston (90) so that it produces a linear motion (Col. 1, lines 5-6) on the piston.

Thus, it would have been obvious to one of ordinary skill in the art to modify Carroll with an electronic actuator as taught by Denne to drive the pin because it is an actuator that is capable of providing control and precision missing from pneumatic actuators (Col. 2, lines 1-7).

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Carroll in view of Daniels.

Carroll teaches the claimed apparatus having a hollow passage (54) with first end to connect pressurized fluid supply (48) to the interior of the chamber (56), a pin (55) having an end portion (53) with a first pressure surface matingly received by the first end of the passage, substantially blocking the passage at the retracted position. The second part of the end is the second pressure surface that comes into contact with the fluid from the fluid supply, the fluid pressure acting upon the pressure surface at varying pressure can change the position of the pin thereby allowing fluid into the cavity in the extended position or to be blocked by the retracted position. This is taught by Carroll with the pressure surface defined on the distal end of the pin, the first pressure surface in the retracted position is in mating position with the poppet valve (50) and the second pressure surface in the retracted portion is in contact with the fluid (Fig. 3). The flow of the fluid will during the extended position come into contact with both the first and second pressure surface. The springs (33) act as actuators to bring the pins from an extended position to a closed position by acting on a pressure surface at the second end of the pin. Carroll also teaches poppet valves (30) that enter into the cavity, the valve having enlarged distal ends extending beyond the distal end of the passage.

Carroll fails to teach varying fluid pressure on the second pressure surface.

Daniels teaches a hollow passage (82) having distal end for connecting a pressurized fluid supply (Fig. 8) to the interior of the chamber (26), a pin (34) extending through the passage and reciprocal between an extended position (Fig. 5) and a retracted position (Fig. 4), said first end blocking the passage when the pin is in its retracted position (Fig. 4) and the surface that contacts the walls of the passageway



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matingly receive and acts as a first pressure surface, an actuator (36) operably coupled to the second end of the pin and reciprocating the pin in cooperation with a fluid pressure at the pressure surface. The cylinder can be either hydraulic, pneumatic, or any other type of cylinder (Col. 3, lines 1-2) and the second end of the pin having a second pressure surface as it extends into contact with the cylinder. The distal end of Daniels being enlarged at the tip for covering the passageway (78) such that it cuts off the flow when in the retracted position (Fig. 4).

It would have been obvious to one of ordinary skill in the art to modify Carroll with an actuator as taught by Daniels because it provides a controlled movement of the pins by applying varying pressure on the second pressure surface of the pin.

### ***Response to Arguments***

10. Applicant's arguments with respect to claims 1-11 have been considered but are moot in view of the new ground(s) of rejection.

Carroll teaches the claimed apparatus having the spring acting as an actuator for moving the pin. Daniels, Denne and Terao, all teach actuators that can be substituted into Carroll for moving the pin.

### ***Conclusion***

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Emmanuel S. Luk whose telephone number is (703) 305-1558. The examiner can normally be reached on Monday through Friday 8 to 4.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wanda L. Walker can be reached on (703) 308-0457. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

E.L.  
July 2, 2003

  
W. L. WALKER  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 1700